REMARKS

Claims 1-28 and 34 are pending in the present application. Claims 1-28 and 34 have been examined, claims 1-15, 18-28 and 34 are rejected, and claims 16 and 17 are allowed. No amendments have been made to the claims. Reconsideration and allowance of the claims are respectfully requested.

Allowed Claims 16 and 17

Applicant notes with appreciation the allowance of claims 16 and 17.

Rejection of Claims 1-5, 8-11, 13-15, 18-20, 22, 28 and 34 Under 35 U.S.C. §102(e)

Claims 1-5, 8-11, 13-15, 18-20, 22, 28 and 34 stand rejected under 35 U.S.C. §102(b) as being anticipated by Janse (U.S. Patent No. 5,610,991).

Janse describes a noise reduction system **1**. In FIG. 1, three speech signals with additive noise, $s(t)+n_1(t)$, $s(t)+n_2(t)$, and $s(t)+n_3(t)$, are received via three microphones **5**, **6** and **7**, respectively. The three speech signals are phase aligned and combined by block **9** to generate a combined speech signal a(t). A processing block **12** computes auto power spectra Φ_{11}, Φ_{22} and Φ_{33} and cross power spectra Φ_{12}, Φ_{23} and Φ_{31} for the three speech signals. The auto power spectra Φ_{11}, Φ_{22} and Φ_{33} are summed by block **13** to generate a combined auto power spectrum Φ_{ac}. The cross power spectra Φ_{12}, Φ_{23} and Φ_{31} are combined by block **14** to generate a combined cross power spectrum Φ_{cc}. A spectral subtraction means **17** receives the combined cross power spectrum Φ_{cc} and provides a corrected combined cross power spectrum Φ_{cc}'. A block **17** computes coefficients for a Weiner filter **10** based on the combined auto power spectrum Φ_{ac} and the corrected combined cross power spectrum Φ_{cc}'. Weiner filter **10** filters the combined speech signal a(t) based on the coefficients and provides a noise corrected signal a(t)'.

Claim 1 of the present invention recites:

> "A signal processing system used in automobile to suppress noise from a speech signal comprising:
>
> a first signal detector configured to provide a first signal comprised of a desired component plus an undesired component, wherein the desired component includes speech;

a second signal detector configured to provide a second signal comprised mostly of an undesired component; and

a signal processor operatively coupled to the first and second signal detectors and configured to process the first and second signals based on a cancellation technique to suppress correlated undesired component and further based on at least one noise suppression technique to suppress uncorrelated undesired component and to provide an output signal having the desired component and further having the correlated and uncorrelated undesired components suppressed."

Applicant submits that claim 1 is not anticipated by Janse for at least the following reasons.

First, Janse does not disclose "a second signal detector configured to provide a second signal comprised mostly of an undesired component," as recited in claim 1. Rather, each of microphones **5**, **6** and **7** in FIG. 1 of Janse provide a speech signal s(t) plus additive noise n(t). (See column 3, lines 51-52.)

Second, Janse does not disclose "a signal processor ... configured to process the first and second signals based on a cancellation technique to suppress correlated undesired component," as recited in claim 1. Rather, Janse performs spectral noise suppression, which is a noise suppression technique disclosed in paragraphs [102] and [103] of the present application. Janse suppresses uncorrelated noise by computing the combined cross power spectrum Φ_{cc}, which is equal to $|S(\omega)|^2 + |N_c(\omega)|^2$, where $|S(\omega)|^2$ is the signal power and $|N_c(\omega)|^2$ is the correlated noise power. Janse then suppresses correlated noise by applying spectral subtraction on the combined cross power spectrum Φ_{cc}. Janse states "by determining the correlated noise and by applying spectral subtraction, the correlated noise is cancelled too." (See column 5, lines 16-18.) Janse thus uses spectral subtraction technique, and not a cancellation technique, to suppress correlated noise.

For at least the above reasons, Applicant submits that claim 1 of the present invention is not anticipated by Janse. Independent claims 19 and 34 each recite features similar to those noted above for claim 1. Claims 2-5, 8-11, 13-15 and 18 are dependent on claim 1, and claims 20, 22 and 28 are dependent on claim 19. Claims 2-5, 8-11, 13-15, 18-20, 22, 28 and 34 are not anticipated by Janse for reasons similar to those noted for claim 1.

Accordingly, the §102(b) rejection of claims 1-5, 8-11, 13-15, 18-20, 22, 28 and 34 should be withdrawn.

Rejection of Claims 6, 7, 12, 21 and 23-27 Under 35 U.S.C. §103(a)

Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Janse in view of Deligne *et al.* (U.S. Patent No. 6,754,623).

Claims 12 and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Janse in view of Pollak *et al.* (Eurospeech 1993).

Claim 21 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Janse in view of Boll *et al.* (Suppression of Acoustic Noise in Speech Using Spectral Subtraction).

Claims 23 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Janse in view of Meyer *et al.* (1997 IEEE)

Claim 25 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Janse in view of Pollak *et al.* and Meyer *et al.*

Claims 26 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Janse in view of and Meyer *et al.* and Boll *et al.*

Claims 6, 7 and 12 are dependent on claim 1, and claims 21 and 23-27 are dependent on claim 19. Janse does not disclose all elements of base claims 1 and 19 for the reasons noted above. Hence, Janse is an insufficient basis for the §103(a) rejection of claims 6, 7, 12, 21 and 23-27.

Accordingly, the §103(a) rejection of claims 6, 7, 12, 21 and 23-27 should be withdrawn.

CONCLUSION

Applicant believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (650) 289-0600.

Respectfully submitted,

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